

Notice of Allowability

Application No.

09/817,591

Examiner

Quoc A. Tran

Applicant(s)

GONG ET AL.

Art Unit

2176

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Appeal Brief filed 04/03/2009 and telephone interviewed on 07/01/2009.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 09/09/2008
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 07/01/2009
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/DOUG HUTTON/
Supervisory Patent Examiner, Art Unit 2176

DETAILED ACTION

In response to the Appeal Brief filed 04/03/2009 and telephone interviewed on 07/01/2009, the examiner's amendment was authorized by attorney of record Pavel Pagodin, Attorney for Applicants.

- Claims 21-32 are cancelled.

Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Information Disclosure Statement

A signed and dated copy of applicant's IDS, which was filed on 09/09/2008 and is attached to this Office Action.

It is noted, a portion of the references cited in the Information Disclosure Statement filed 09/09/2008 fails to comply with the provisions of 37 CFR 1.56(c), 1.97, 1.98 and MPEP § 609 because one of the references is non-English document. The examiner has not considered, and has lined through, that portion of the Information Disclosure Statement as to the merits (see the attachments strike-out line items for details).

Applicant is advised that the date, title and author of any re-submission of any item of information contained in these Information Disclosure Statements or the submission of any missing elements will be the date, title and author of submission for purposes of determining compliance with the requirements based on the time of filing the statement, and title and author including all certification requirements for statements under 37 CFR 1.97(e) and 37 CFR 1.56(c). See MPEP § 609.05(a) and (c).

EXAMINER'S AMENDMENT

The application has been amended as follows:

In the Claims:

- Please replace the claims with the following claim set:

1. (Previously Presented) A method of creating a generic text summary of a document; said method comprising:

- obtaining the document;
- creating a weighted document term-frequency vector for said document;
- for each sentence in said document, creating a weighted sentence term-frequency vector;
- computing a score for each said weighted sentence term-frequency vector in accordance with relevance to said weighted document term-frequency vector;
- selecting a sentence for inclusion in said generic text summary in accordance with said computing, wherein the selected sentence has the computed score

representing high degree of relevance of the corresponding weighted sentence term-frequency vector to said weighted document term-frequency vector;

deleting said selected sentence from said document and eliminating terms in said selected sentence from said document; and

generating the generic text summary based on the selected sentence.

2. (Previously Presented) The method of claim 1 further comprising:

recreating said weighted document term-frequency vector in accordance with said deleting and said eliminating; and

selectively repeating said computing, said selecting, said deleting, said eliminating, and said recreating.

3. (Original) The method of claim 2 wherein said selectively repeating is terminated when a predetermined number of sentences has been selected.

4. (Original) The method of claim 1 wherein said computing comprises calculating an inner product of said weighted sentence term-frequency vector and said weighted document term-frequency vector.

5. (Original) The method of claim 1 wherein said creating a weighted sentence term-frequency vector comprises implementing a local weighting function and implementing a global weighting function.

6. (Previously Presented) The method of claim 5 wherein said creating a weighted sentence term-frequency vector comprises normalizing each said weighted sentence term-frequency vector by dividing the weighted sentence term-frequency vector by a magnitude of the weighted sentence term-frequency vector.

7. (Original) The method of claim 1 wherein said creating a weighted document term-frequency vector comprises implementing a local weighting function and implementing a global weighting function.

8. (Previously Presented) The method of claim 7 wherein said creating a weighted document term-frequency vector comprises normalizing said weighted document term-frequency vector by dividing the weighted document term-frequency vector by a magnitude of the weighted document term-frequency vector.

9. (Previously Presented) A system for creating a generic text summary of a document; said system comprising:

- a computer comprising at least a CPU and a memory;

- an interface for obtaining the document;

- a display for displaying said generic text summary; and

- summarizer program code, operable on said computer, for analyzing and summarizing said document; said summarizer program code comprising:

a vector generator for creating a weighted document term-frequency vector for said document and creating a weighted sentence term-frequency vector for each sentence in said document;

a scoring engine for computing a score for each said weighted sentence term- frequency vector in accordance with relevance to said weighted document term-frequency vector;

a selector for selecting a sentence for inclusion in said generic text summary in accordance with output results from said scoring engine;

a document editor for deleting said selected sentence from said document and for eliminating terms in said selected sentence from said document and;

a generic summary generator for generating the generic text summary based on the selected sentence.

10. (Previously Presented) The system of claim 9 wherein said vector generator recreates said weighted document term-frequency vector in accordance with output results from said document editor.

11. (Original) The system of claim 10 wherein said summarizer further comprises a loop routine for generating iterative sequential operations of said vector generator, said scoring engine, said selector, and said document editor.

12. (Original) The system of claim 11 wherein said loop routine is responsive to a predetermined limit such that said generic text summary is of a predetermined number of sentences.

13. (Previously Presented) A method of creating a generic text summary of a document; said method comprising:

- obtaining the document;
- decomposing said document into individual sentences;
- forming a candidate sentence set from said individual sentences;
- for each of said individual sentences in said candidate sentence set, creating a weighted sentence term-frequency vector;
- creating a weighted document term-frequency vector for said document;
- for each of said individual sentences in said candidate sentence set, computing a relevance score for said weighted sentence term-frequency vector relative to said weighted document term-frequency vector;
- selecting a sentence for inclusion in said generic text summary in accordance with said computing, wherein the selected sentence has the computed relevance score representing a high degree of relevance of the corresponding weighted sentence term-frequency vector to said weighted document term-frequency vector;
- deleting said selected sentence from said candidate sentence set;
- eliminating terms in said selected sentence from said document;

recreating said weighted document term-frequency vector in accordance with said deleting and said eliminating; and
generating the generic text summary based on the selected sentence.

14. (Original) The method of claim 13 further comprising: selectively repeating said computing, said selecting, said deleting, said eliminating, and said recreating.

15. (Original) The method of claim 14 wherein said selectively repeating is terminated when a predetermined number of sentences has been selected.

16. (Original) The method of claim 13 wherein said computing comprises calculating an inner product of said weighted sentence term-frequency vector and said weighted document term-frequency vector.

17. (Original) The method of claim 13 wherein said creating a weighted sentence term-frequency vector comprises implementing a local weighting function and implementing a global weighting function.

18. (Previously Presented) The method of claim 17 wherein said creating a weighted sentence term-frequency vector comprises normalizing each said weighted sentence term-frequency vector by dividing the weighted sentence term-frequency vector by a magnitude of the weighted sentence term-frequency vector.

19. (Original) The method of claim 13 wherein said creating a weighted document term-frequency vector comprises implementing a local weighting function and implementing a global weighting function.

20. (Previously Presented) The method of claim 19 wherein said creating a weighted document term-frequency vector comprises normalizing said weighted document term-frequency vector by dividing the weighted document term-frequency vector by a magnitude of the weighted document term-frequency vector.

21-32. (Canceled)

Allowable Subject Matter

The prior art made of record:

- | | | |
|---|---------------|------------------|
| ➤ US 20020078090A1 | Hwang, et al | Filed 06/29/2001 |
| ➤ US006356864B1 | Foltz, et al. | Filed 07/23/1998 |
| ➤ US006212494B1 | Boguraev | Filed 07/20/1998 |
| ➤ William W. Cohen "Data Integration Using Similarity Joins and a Word-Based Information Representation Language" By At& T Lab- Research, Shannon Laboratory, Published by ACM, Vol. 18; No. 3, July 2000, Pages 288-321. | | |

❖ Claim(s) 1-20 are allowed:

The following is a statement of reasons for the indication of allowable subject matter:

Interpreting the claims in light of the specification, Examiner finds the claimed invention is patentably distinct from the prior art of record, which set forth in the followings:

- Hwang, et al. teaches a method for summarizing text from a document; includes two steps processes, first selected the selecting sentences for inclusion in the document text summary based upon the ranking (i.e. score representing high degree of relevance,) and second merge the selected sentences onto the document summary. This is generally set forth at Para [0013] and at the Abstract and illustrated at figure 3 of Hwang.

- Foltz, et al. discloses a segment vector of an entire reference text, abstract, title of a document that conveys an idea or summarizes a topic. Each document is allocated a single vector within the data matrix, wherein the data matrix is weighted and associated with term-frequency vector of a segment vector of the document. Foltz applied the widely used, LSI [Latent Semantic Indexing or LSA [Latent Semantic Analysis] and reduced SVD [Singular Value Decomposition]. This is generally disclosed at [Column 2, Lines 20-25 and Column 10 Lines 15-25 and illustrated at figure 2 of Foltz.

- Boguraev discloses a document structure included the local and global salient value for every referent in the text that is available by anaphora resolution. This is generally disclosed at [Column 11, Lines 55-65] of Boguraev.

- William W. Cohen William W. Cohen applied the widely used vector space model and TF-IDF weighting scheme with assigning weight terms with unit length normalization; to normalizing each said weighted sentence term-frequency vector by dividing the weighted sentence term-frequency vector by a magnitude of the weighted sentence term-frequency vector. This is generally disclosed at Pages 290-291 of Cohen.

Under the broadest reasonable interpretation of the claimed limitation which is consistence with the Applicant's Specification. The prior art cited above fails to teach all of the Applicant's claimed limitation. In particularly, the claimed invention advantageously provides a finer level of detail that enables the selected sentence may then be removed from the candidate sentence set (a high weighted sentence term-frequency vector in a document), and all the terms (a high weighted document term-frequency vector in a selected sentence in a document) contained in this selected

sentence may be eliminated from the document [see the above claims 1-20 and the current disclosure at page 8 Lines 11-14, and FIG. 1].

The Examiner asserts that the claims overcome the prior art of record as describes above when the limitations are read in combination with the respective claimed limitations in their entirety.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc A. Tran whose telephone number is 571-272-8664. The examiner can normally be reached on Mon through Fri 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached on (571)272-4137. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Quoc A. Tran/
Examiner, Art Unit 2176

/DOUG HUTTON/
Supervisory Patent Examiner, Art Unit 2176